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An

Essay
on

Cholera Morbus

by

William Neal

of

Pennsylvania

October 30th 1825

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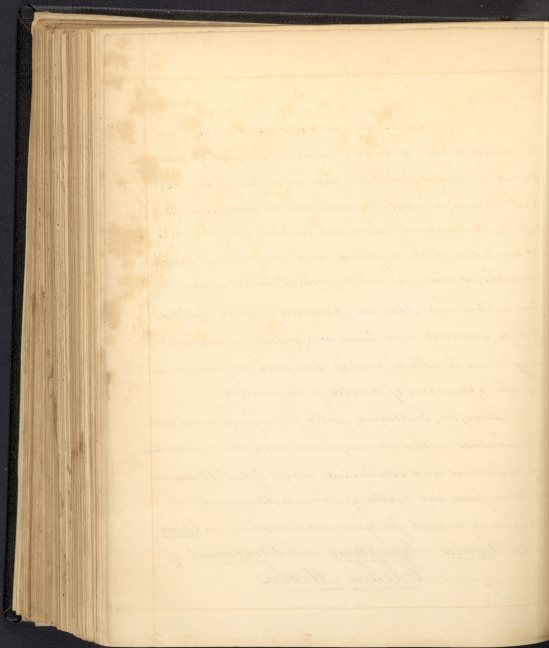
William

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Among the numerous diseases, which are presented to the medical Students, as subjects of inaugural or other dissertations, there are so few, if any, but have already so repeatedly undergone the scrutiny of those, who by their superior talents and exertions have from time to time adorned the profession with the fruits of their researches, as almost, at once, to preclude the extravagant and presumptuous hope, that one possessed of such limited talents and still more limited experience as myself, should ever be able to present you with anything, wearing the appearance of novelty or originality.

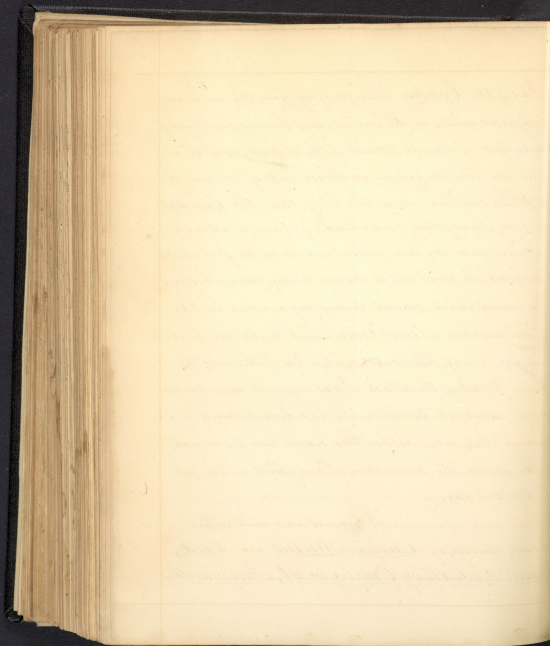
Therefore, Gentlemen, fully impressed with these considerations, rather in compliance with the constitutional requisitions and established usages of this University than from any matter of choice with myself I propose to present for your consideration an Essay on the Causes Symptoms and Treatment of Cholera Morbus.



First of the Causes. These, judging from the authority of different writers on the subject, and having been myself the subject of several attacks of the disease, as well as from the limited experience I have had of treating it in others, confirm us in the belief that the Causes are very imperfectly understood, if I may be allowed to judge from my own person and from the first attack I had, which could not be traced to any cause whatever.

The second attack occurred during my residence in the Philadelphia Almshouse, which could not be attributed to any other cause unless the following; the evening preceding the attack I was engaged in endeavouring to resuscitate two men, who had been destroyed in a well by foul air, whether this could have had any influence in the production of ^{the} complaint I am not prepared to say.

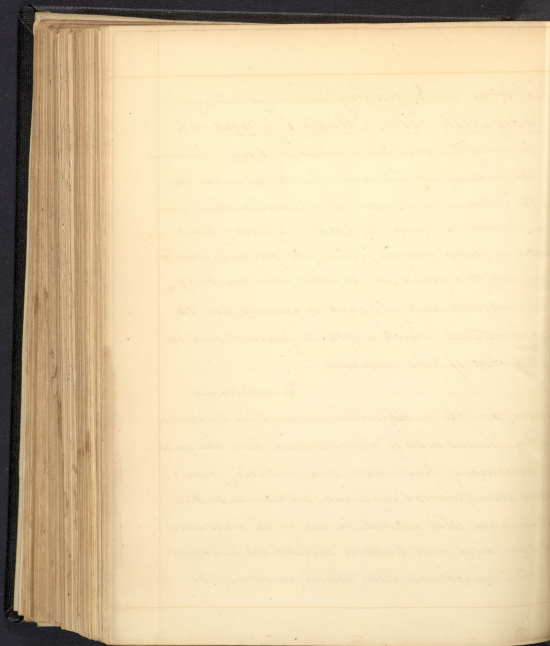
The general and most certain causes, however, of Cholera Morbus are Cold, Heat, Sedentary Employment, Irregularities



in Eating and Drinking, more particularly, of
Indigestible Food, Much Effluvia &c.

The first of these, which is to be noticed, is Cold. The action of this agent appears to be more dependent, upon the state of the system at the period of its application, than upon the manner, in which the Cold is applied; though lying on damp ground, getting the feet wet, or drinking any cold fluid, as ice water, when the body, is over-heated and fatigued by exercise, are the circumstances, which appear to favour most the production of this complaint.

The autumnal season, from the predisposition induced in the system by the previous heats of summer, and from the great or variations of temperature and, probably, from some atmospherical influence, appears to be the season, when cold applied in any of the ways above mentioned, is most liable to disturb the functions of the Stomach and Liver, thereby rendering the

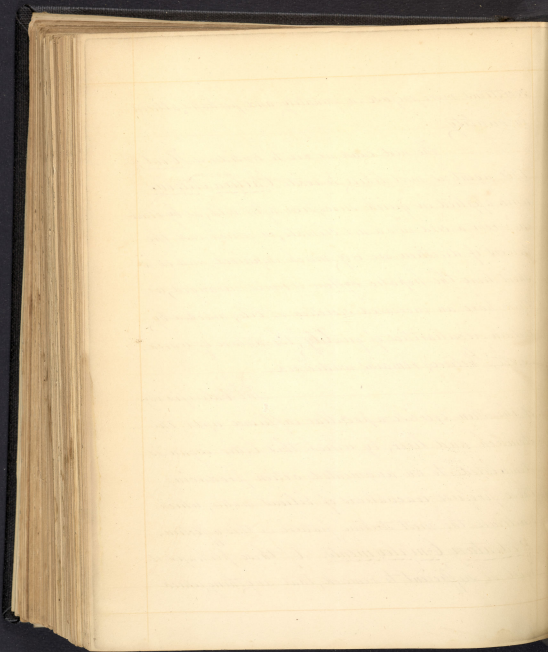


secretions, more profuse in quantity and, perhaps, altered in quality.

The next cause, we are to consider, is Heat; this agent is most likely to excite Cholera Morbus when applied in quick succession after cold, as by removing from a cold into a hot climate, in which case the powers of digestion are very much impaired, and in a short time the hepatic system becomes deranged, we then have an increased secretion of bile, marked by certain peculiarities of quality, the nature of which, as yet, I believe, remains undecided.

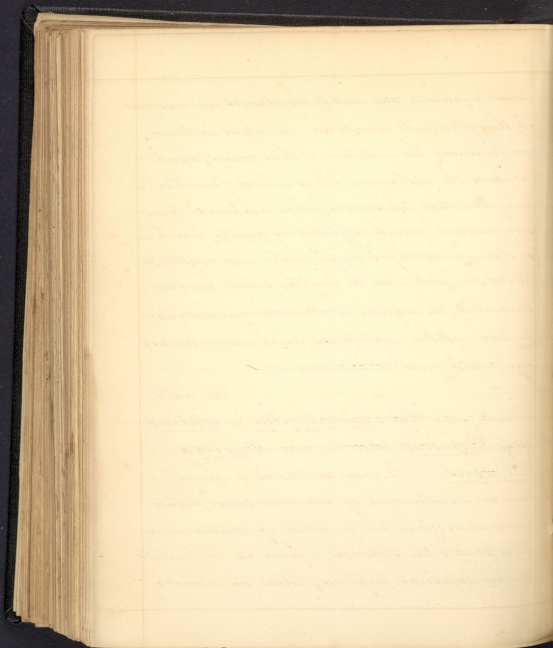
The calorific rays of the sun exercise a peculiar influence upon the stomach and liver, by which this latter organ is stimulated to an augmented action producing those profuse evacuations of bilious matter, which constitute the most striking feature in this affection.

Sedentary Employment. Of these perhaps it will be sufficient to remark, that anything, which



tends to debilitate and weaken the stomach and consequently the system, will exercise an important influence in favouring the operation of those causes, which produce the distemper? It is a fact, familiar to every one, that the system, when weakened from any cause, is readily affected by agents, which in a state of healthful vigour ^{it} would have resisted. Hence, we find, when the healthy action has been subverted, the system is rendered more susceptible to any morbid impressions, which may approach sufficiently near, to influence it.

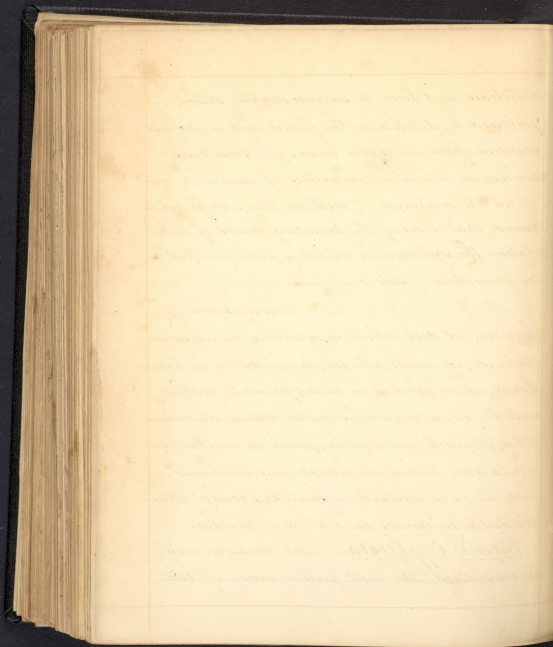
We have already said that Irregularities in Eating and Drinking will produce Cholera Morbus. It may do this in a direct manner, independent of any other cause, either from an excess in the quantity of matter introduced into the stomach, or from its indigestible or other injurious properties, taxing the stomach



intestines and liver to an inordinate action, followed by debility in the former, and a profuse secretion from the latter organ. In those cases, however, in which irregularities of diet have produced the complaint, it will, we think, be generally found, that some of the preceding causes of debilitating the system, have created a predisposition to the formation of this complaint.

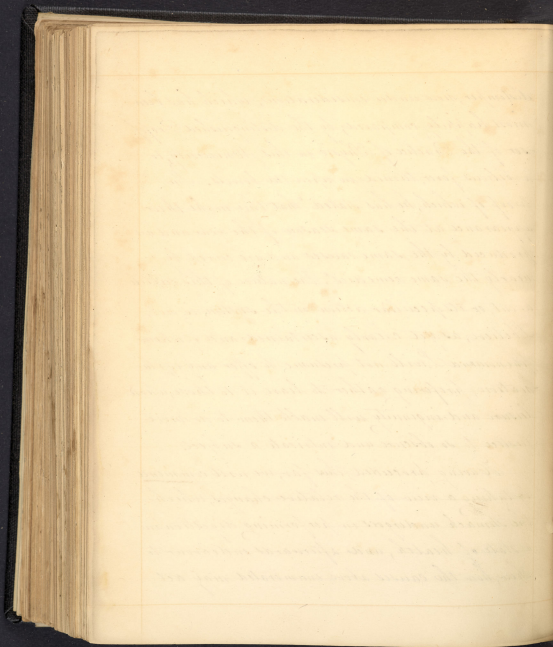
In considering, therefore, the diet which may appear improper or otherwise, we must, always, be guided by the circumstances, under which it is used; for many articles will be found injurious under certain conditions of the stomach and system, which at another time would have proved wholesome and nutritious so that, which is suitable in health, becomes often decidedly injurious in a state of disease.

Marsh Effluvia This perhaps may be considered the most prolific cause of the



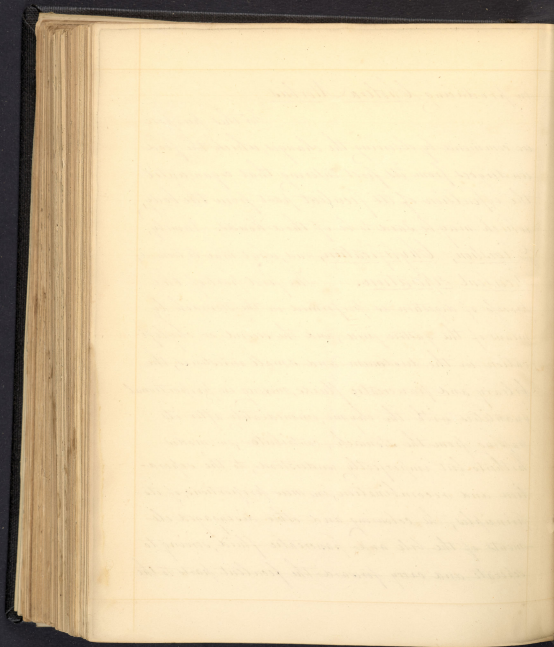
distemper, now under consideration, which has been most happily compared, by the distinguished Professor of the Practice of Physic in this University, to a bilious fever, turned in upon the bowels. In proof of which, he has stated "that they make their appearance at the same season of the year and are produced by the same causes and are cured by nearly the same remedies". The nature of this subtle agent, or its peculiar action on the system, is not, I believe, as yet clearly ascertained and of which phenomena I will not presume to offer any explanation, preferring rather to leave it to those, whose leisure and ingenuity will enable them to do more justice to so obscure and intricate a subject.

Having proceeded thus far, we will commence by taking a view of the relative changes, which the stomach undergoes in performing digestion in a state of health, and afterwards endeavour to shew, how the causes above enumerated may act



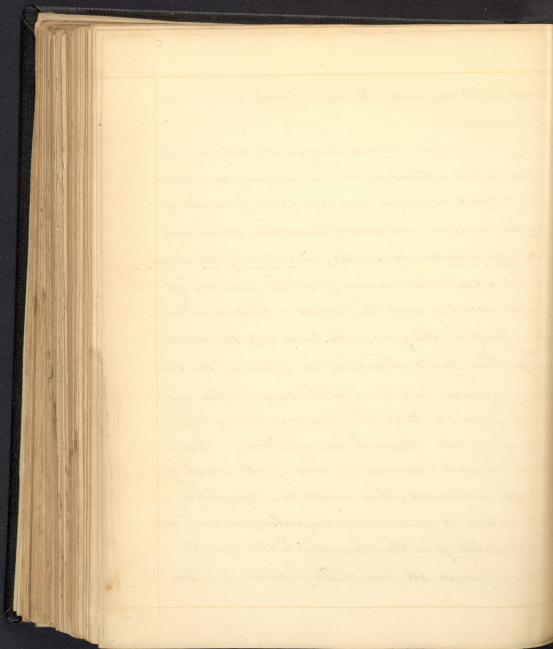
in producing Cholera Morbus

For this purpose we commence by observing the changes, which the food undergoes from its first entering that organ, until the expulsion of its feculent part from the body, which may be said to be of three kinds. Namely, Digestion, Chylification, and, what may be termed, Feculent separation. The first part of the process of digestion is performed in the stomach by means of the gastric juice, and the second or chylification in the duodenum and small intestines, the biliary and pancreatic fluids, mixing in proportional quantities with the chyme, immediately after its passing from the stomach, contribute, in modes hitherto but imperfectly understood, to the separation and recombination, in new proportions, of its principles, the colouring and other disengaged elements of the bile and pancreatic fluid, serving to separate and carry forward the feculent parts to the



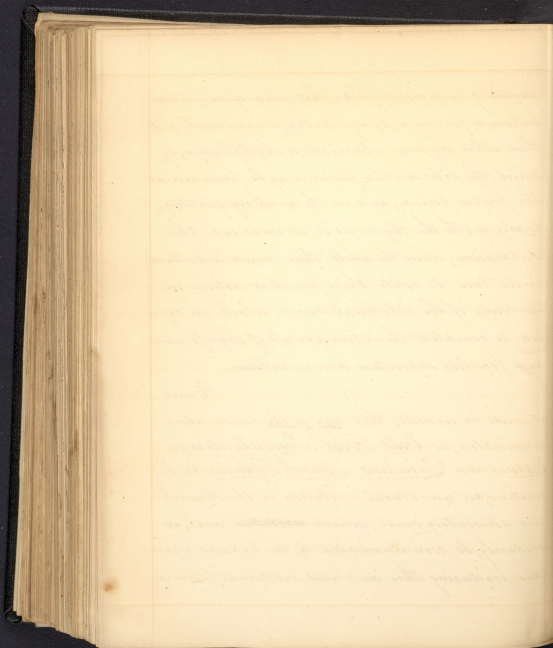
large intestines, where the entire process of digestion is completed.

These several processes are carried on by organs, whose actions, as we have already mentioned, are rendered accordant and coöperative by means of nervous connexion subsisting between them, which has been denominated sympathy, and it is by the agency of this sympathetic union, that the quantity of fluids secreted and the periods of their secretion are adjusted. The food, when taken into the mouth, excites there, by its stimulus, the action of the salivary glands, and it is, by the same proper and direct impulse, that the glands, secreting the fluids of the Stomach, are affected. But, as the Liver and Pancreas lie out of the reach of direct excitement, they must be stimulated into action by an indirect impulse, communicated by sympathy from the stomach. In this case, the latter organ, in all probability, receives from the



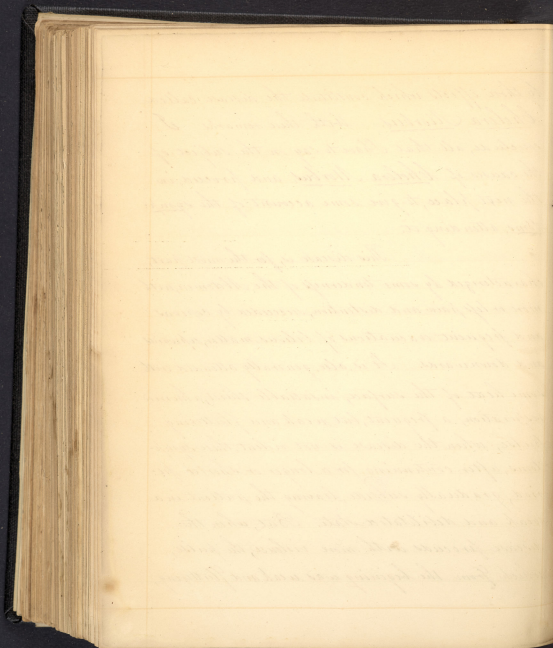
digesting or digested foods, that kind of animation intended for and, by sympathy, communicated to these other organs, subservient to chylosification, by which, the bile or other fluids may be provided at the proper period, and in the necessary quantity, to mix with the chyme, as it descends into the duodenum, where the whole thus mixed is destined in its turn to excite those peculiar actions in the course of the intestinal canal, which are required to complete the entire process of chylosification and feculent separation and expulsion.

Thence, it must be evident, that any of the causes above enumerated, as Cold, Heat, Irregularities in Eating and Drinking, Morsh Effluvia &c by creating an unnatural irritation in the stomach and alimentary canal, which ~~irritation~~ will, secondarily, be communicated to the hepatic apparatus, producing there an undue excitement followed



by those effects which constitute the disease called Cholera Morbus. With these remarks I conclude, all that I have to say on the subject of the causes of Cholera Morbus, and proceed, in the next place, to give some account of the symptoms, attending it.

This disease is, for the most part, characterized by some tenderness of the Abdomen, with more or less pain and distention, succeeded by copious and frequent evacuations of bilious matter, upwards and downwards. It is, also, generally attended with some heat of the surface, insatiable thirst, a hurried respiration, a frequent, but weak and fluttering pulse, when the disease is not violent, these symptoms, after continuing for a longer or shorter period, gradually subside, leaving the patient in a weak and debilitated state. But, when the disease proceeds with more violence, the pulse, which from the beginning was weak and fluttering,

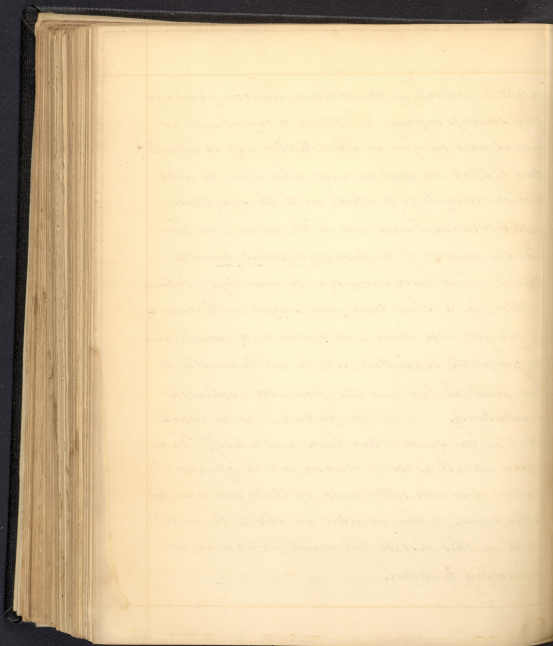


becomes still more so, attended with great prostration of strength, cold, clammy sweats, haggard and ghastly countenance, great anxiety, cold extremities, a short and hurried respiration. At this period of the attack the muscles of the abdomen and extremities become affected with cramps and other painful affections accompanied by hicough, loss of voice, great gastric distress, sinking pulse, &c. This, if not quickly arrested, terminates in the death of the patient, an event, which not unfrequently happens, within the space of twenty four hours, and sometimes, even, in a much shorter time.

These are the symptoms, which generally distinguish the disease, under consideration. But, as in every other malady, we do not always find them all combined, in the same case, as was fully exemplified in my own person in an attack before alluded to, in which case, there was no particular sensation at the commencement,

The first of these is the fact that the
 world is not a uniform whole, but a
 collection of many different parts, each
 with its own characteristics and laws.
 This is the principle of diversity, and it
 is the foundation of all science and
 philosophy. Without it, we could not
 understand the world as it is, or
 improve it for the better. It is the
 source of all knowledge and wisdom,
 and it is the key to all progress and
 civilization. We must therefore study
 the world as it is, and not as we
 wish it to be. We must observe its
 many different parts, and learn from
 each of them what it can teach us.
 Only in this way can we hope to
 understand the world as it is, and
 to make it a better place for all of
 us.

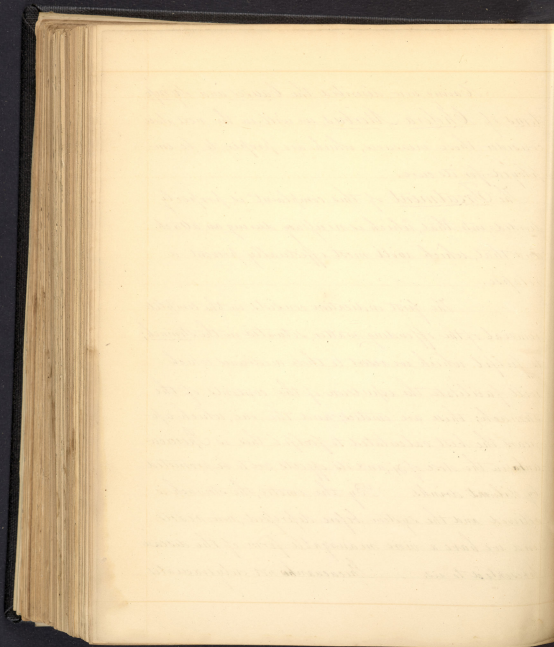
except a fullness of the abdomen, unaccompanied by any soreness or pain. I retired to bed, as well as usual and enjoyed an undisturbed repose until two O'clock the next morning, when I awoke with a disposition to go to stool, with the symptoms just mentioned, I arose and in the course of an hour I had a number of profuse evacuations from the bowels, which were succeeded by vomitings of bilious matter, in a short time I was seized with cramps in my feet, legs, loins and hands, and soon became so completely exhausted, as to be wholly unable to get from the bed and the flux was discharged involuntarily. So violent, indeed, was the attack, that in the space of two hours and a half, I had given up all hopes of recovery, which opinion I believe was also entertained, by those, who were in attendance. Other varieties are also to be met with in this disease but which perhaps it is unnecessary to detail.



Having now, described the Causes and Symptoms of Cholera Morbus, we will in the next place consider those measures, which are proper to be employed for its cure.

The Treatment of this complaint is properly divided, into that, which is necessary during an attack and that, which will most effectually prevent a relapse.

The first indication consists in the complete removal of the offending matter, situated in the Stomach; to fulfil which we resort to those medicines which will facilitate the expulsion of the contents of the Stomach; these are emetics; and the one, which appears the best calculated to fulfil this, is Spicacuanha in the dose of \mathfrak{ss} , and its effects are to be promoted by diluent drinks. By the emetic, the Stomach is relieved and the system before depressed, now reacts and we have a more manageable form of the disease presented to us. Spicacuanha not only evacuates



the contents of the stomach, but also by its antispasmodic and diaphoretic powers, induces relaxation of spasm and determination to the surface; having thus cleared the stomach of the offending cause, the next indication is certainly to calm the irritation of that organ; to do which, some of the following means will generally be found efficient, such as Lime water and Milk, a table spoon full of each, given occasionally, has been found useful; or the common effervescent draught, seltzer water, mint or clove teas will, sometimes, prove advantageous; should these, not answer, an opiate should be administered, or Calomel, in small doses, at the $\frac{1}{4}$ or $\frac{1}{2}$ of a grain.

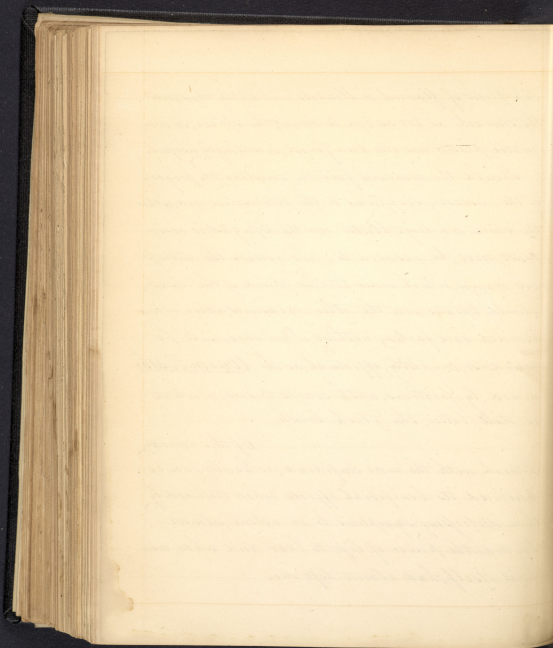
With the same view, an enema of Opium should occasionally be administered aided by frictions and fomentations, over the epigastrium, which are always beneficial and exceedingly grateful to the patient; these may consist of spirits or Brandy heated, with the addition of some spices, in which

The history of the United States is a story of
the struggle for freedom and justice for all
people. It is a story of the brave men and women
who fought for the principles of liberty and
equality. It is a story of the many hardships
and sacrifices that have been made in the
pursuit of a better life for all. It is a story
of the progress that has been made and the
work that still remains to be done. It is a
story that should inspire us to strive for
a more perfect union, a more perfect
liberty, and a more perfect justice for all.

dip pieces of flannel or blankets and apply them, over the stomach as hot as can be borne; the opiate, or aromatic plaster has also been found, exceedingly useful.

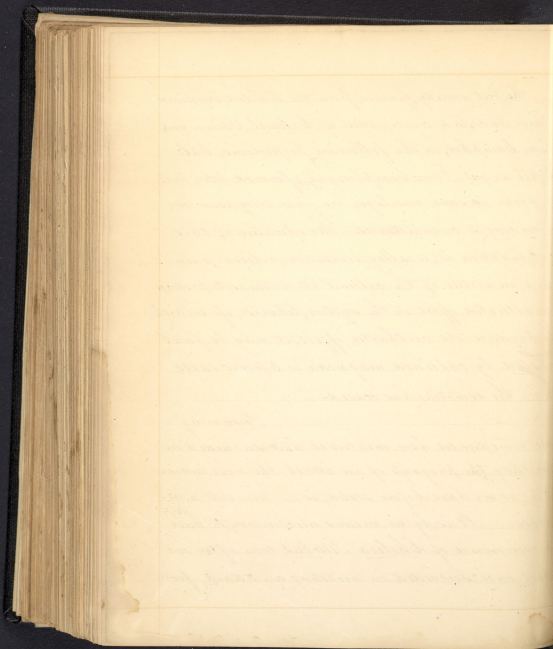
Should the measures fail in arresting the progress of the disease, sinapisms to the extremities and, either the same or a large blister over the Epigastric region must, next, be resorted to. To relieve the distressing cramps, which occur at this period of the disease, should Opium and the other measures, above recommended have failed, nothing, I am sure, will be found so, completely, effectual, as the Warm Bath; aided, by Frictions, with coarse towels, or, what is still better, the Flesh brush.

Of this remedy, I speak, with the more confidence, as having once experienced its beneficial effects, when tortured by those distressing symptoms to an extent, almost beyond the power of life to bear and when, even hope itself, had almost left me.



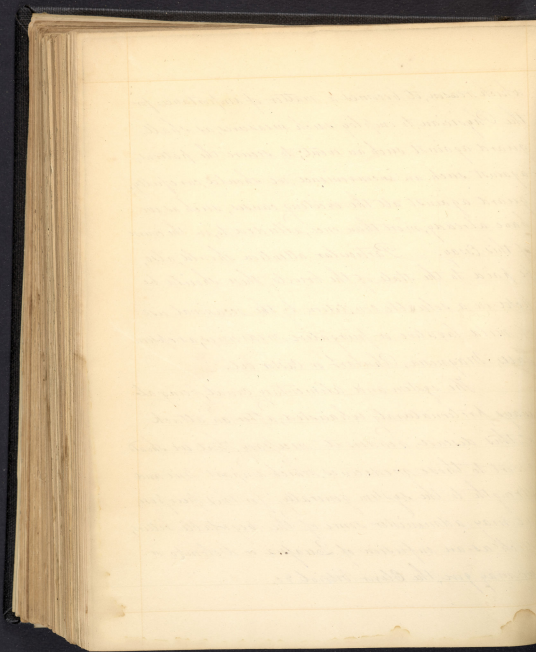
The best remedy, however, from the limited experience I have had, is a combination of Calomel, Opium, and Gum Camphor, in the following proportions, Cal: Opii xx grs Gum: Camphor: grij.; formed into a pill, or given in some macilage, one given every hour or according to circumstances. The operation of this combination is, to allay irritation, relieve pain and, in virtue of the calomel it contains, to produce an alterative effect on the system, likewise, if we wish to produce its cathartic effect, it may be facilitated by calcined magnesia or Epsom salts, when the vomiting has ceased.

Presuming, then, the remedies we have mentioned, have succeeded in arresting the progress of an attack, the next indication, as we have before stated, is, to prevent a relapse. It is, by no means, uncommon to have a recurrence of Cholera Morbus, even after we have once succeeded in arresting an attack, for



which reason, it becomes a matter of importance for the Physician, to employ such measures, as shall guard against such an event; to secure the patient, against such an inconvenience, we should, carefully, guard against all the existing causes, such as we have already, more than once, alluded to, in the course of this Essay. Particular attention should, also, be paid to the state of the bowels, these should be kept in a soluble condition by the occasional use of mild laxative or purgative medicines, as opium salts, Magnesia, Rhubarb or Castor oil.

The system and alimentary canal, being always preternaturally exhausted, after an attack of this disease, renders it necessary, that we should resort to those medicines, which impart tone and strength to the system generally, for this purpose, we may administer some of the vegetable bitters, such, as an infusion of Quassia or Colombo, or we may give, the Elixir Bitriol &c.



Should the predisposition to a recurrence still exist, it is quite probable, that it is kept up by some derangement of the Liver itself, in which case, nothing will be found so effectual, as a course of Mercury, urged to salivation.

The clothing of persons of this description is a matter of no small importance and should by no means be overlooked in the prophylactic treatment of this disease. The wearing of flannel next to the skin has been found an excellent preventive in all the bowel affections, and not less so, in Cholera Morbus.

